

# Asthma

## Disease Information Packets – Slide Sets

Public Health Services,  
Community Health Statistics

11/2012



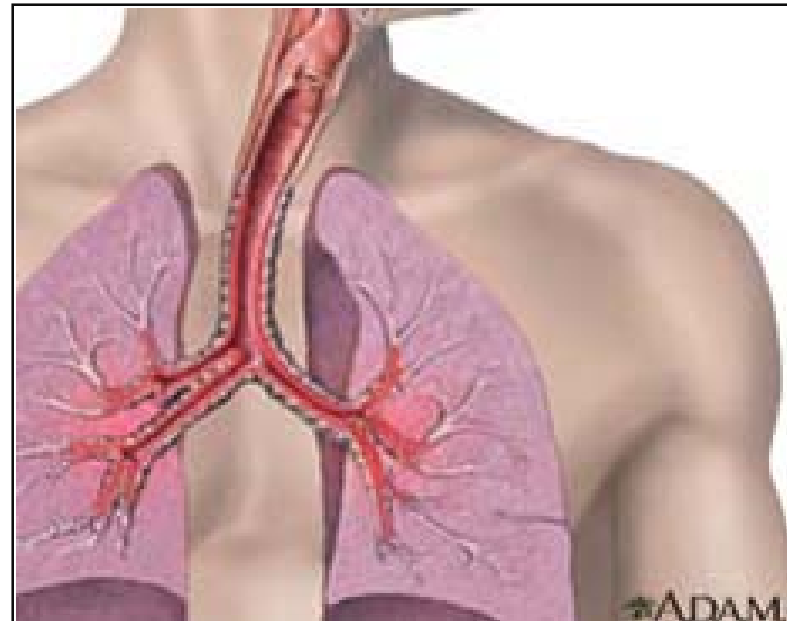
# What is Asthma?

- Asthma is a disease in which the airways of the lungs tighten and swell in response to certain triggers.
- Asthma attack symptoms include:
  - Coughing
  - Shortness of breath or trouble breathing
  - Wheezing
  - Tightness or pain in the chest

Source: Centers for Disease Control and Prevention. Asthma. Asthma's Impact on the Nation Factsheet.  
[http://www.cdc.gov/asthma/impacts\\_nation/AsthmaFactSheet.pdf](http://www.cdc.gov/asthma/impacts_nation/AsthmaFactSheet.pdf). Accessed September 18, 2012.

# What is an Asthma Attack?

- Asthma attacks happen when a “trigger” causes the sides of the airways in the lungs to swell, and the airways shrink.
- Less air gets into the lungs, and the person has difficulty breathing.
  - Triggers include:
    - Tobacco smoke
    - Dust mites
    - Outdoor air pollution
    - Cockroaches
    - Pets
    - Mold



Source: Centers for Disease Control and Prevention. Asthma. Basic Information. <http://www.cdc.gov/asthma/facts.htm>. Last updated August 3, 2012. Accessed September 18, 2012.

# Who Gets Asthma?

- Asthma is the most common long-term disease in children, but also occurs in adults.
- About 26 million Americans, nearly 7 million of whom are children, had asthma in 2010.



Sources: Centers for Disease Control and Prevention. Asthma. Basic Information. <http://www.cdc.gov/asthma/facts.htm>. Last updated August 3, 2012. Accessed September 18, 2012.

# Demographic Risk Factors

- Race / Ethnicity
  - Multi-race and black adults are more likely to have asthma than white adults. (CDC)
- Genetics/Family History
  - Multiple asthma-associated genes interact with environmental factors to influence overall risk, onset, and severity of the disease. (Ober, 2006)
  - The risk of developing lifetime asthma is 4.8 times higher for people with a family history of the disease. (Liu, 2009)



Sources: - Centers for Disease Control and Prevention. Asthma. Asthma's Impact on the Nation Factsheet. Accessed September 18, 2012.  
- Ober C, Hoffjan, S. (2006). Asthma genetics 2006: the long and winding road to gene discovery. Genes Immun. 7:95-100.  
- Liu T, Valdez R, et al. (2009). The association between family history of asthma and the prevalence of asthma among US adults: National Health and Nutrition Examination Survey, 1999-2004. Genet Med. 5:323-328.

# Demographic Risk Factors

- Age
  - Adults ages 18-24 are more likely to have asthma than older adults. (CDC)
  - Asthma is more common among children than among adults. (Akinbami, 2011)
- Gender
  - Among adults, women are more likely to have asthma than men. (CDC)
  - Among children, boys are more likely to have asthma than girls. (CDC)



Sources: - Centers for Disease Control and Prevention. Asthma. Asthma's Impact on the Nation Factsheet. Accessed September 18, 2012.  
- Akinbami LJ, Moorman JE, Liu X. Asthma prevalence, health care use, and mortality: United States, 2005-2009. National Health Statistics Reports, no 32. Hyattsville, MD: National Center for Health Statistics. 2011.



# Social and Behavioral Risk Factors

- Low Birth Weight
  - Low birth weight is associated with an increased risk of developing asthma. (Lu, 2012)
- Obesity
  - Obese children have about twice the risk of having asthma compared with children of normal weight. (Suglia, 2011)



Sources: - Lu FL, et al. (2012). Body mass index may modify asthma prevalence among low-birth-weight children. Am J Epidemiol. 176:32-42.1. - Suglia SF, Chambers EC, Rosario A, Duarte CS. (2011). Asthma and obesity in three-year old urban children: role of sex and home environment. J Pediatr. 159:14-20.

# Social and Behavioral Risk Factors

- Living in Polluted Areas
  - Air pollutants such as ozone and nitrogen dioxide have been associated with impaired breathing in children with asthma.
  - Air pollution has long-term effects on lung development in children.



Source: Gauderman WJ, Avol E, Gilliland F, Vora H, Thomas D, Berhane K, McConnell R, Kuenzli N, Lurmann F, Rappaport E, Margolis H, Bates D, Peters J. (2004). The effect of air pollution on lung development from 10 to 18 years of age. N Engl J Med. 351:1057-1067.



# Intermediate Outcomes

- Atopic Dermatitis
  - Causes chronic skin inflammation
  - Nationally, about 30% of patients with atopic dermatitis develop asthma. (Spergel, 2010)
- Allergic Rhinitis
  - “Hay Fever”
  - Americans with allergic rhinitis are 3 times more likely to develop asthma. (Pawankar, 2004)
- Premature or Low Birth Weight Infants
  - Women who have asthma are more likely to give birth to premature or low birth weight infants. (Moyer, 2006)



Sources: - Spergel JM. (2010). Epidemiology of atopic dermatitis and atopic march in children. *Immunol Allergy Clin*. 30(3):269-280.  
- Pawankar R. (2004). Allergic rhinitis and asthma: the link, the new ARIA classification and global approaches to treatment. *Curr Opin Allergy Clin Immunol* 4:1-4. - Moyer, P. Prematurity, low birthweight are more likely with maternal asthma. (2006). *Medscape Medical News*.

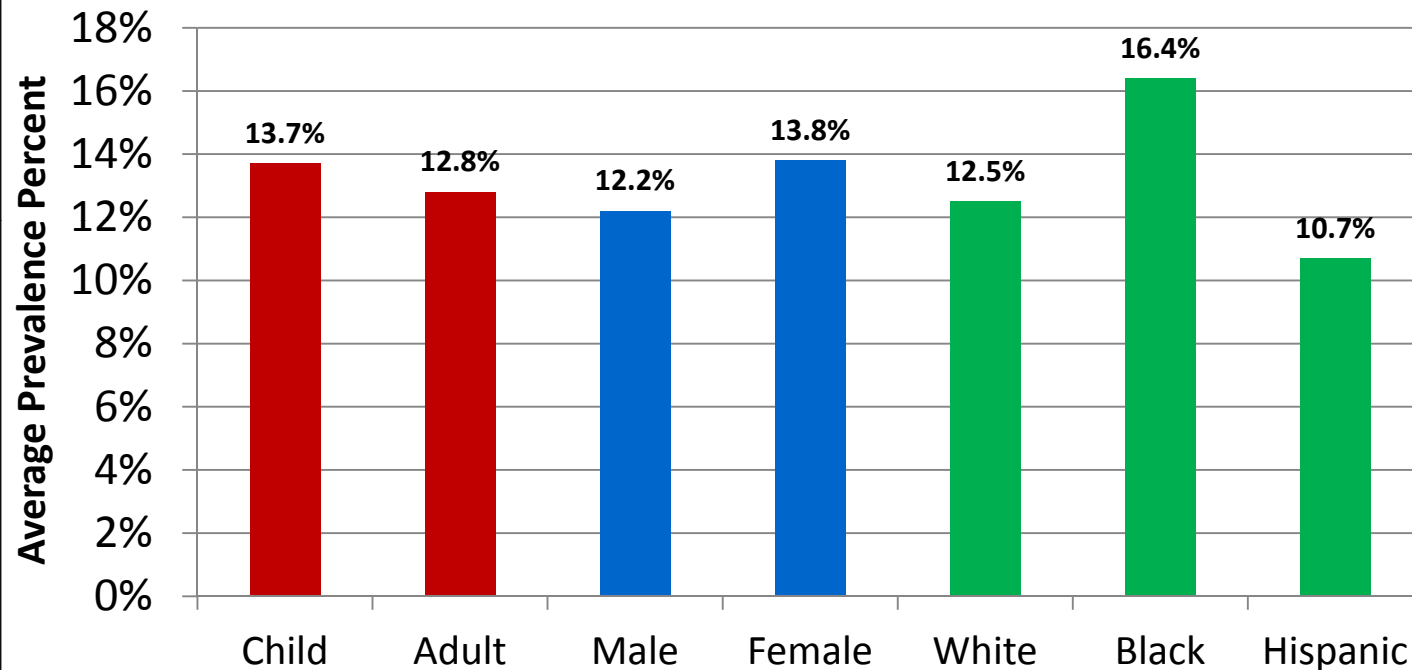
# National Statistics

- About 13 million Americans reported at least one asthma attack in the previous year. (Akinbami, 2011)
- Asthma is responsible for:
  - 15 million physician office and hospital outpatient department visits each year (EPA)
  - 2 million emergency department visits each year in the U.S. (EPA)
- Nationally, 1 in 11 children has asthma. (CDC)

Source: - Akinbami LJ, Moorman JE, Liu X. Asthma prevalence, health care use, and mortality: United States, 2005-2009. National Health Statistics Reports, no 32. Hyattsville, MD: National Center for Health Statistics. 2011. - Environmental Protection Agency. Office of Air and Radiation. Asthma Fact Sheet. [http://www.epa.gov/asthma/facts/asthma\\_fact\\_sheet\\_en.pdf](http://www.epa.gov/asthma/facts/asthma_fact_sheet_en.pdf). Last updated April 2012. Accessed September 18, 2012. - Centers for Disease Control and Prevention. Asthma. Asthma's Impact on the Nation Factsheet. [http://www.cdc.gov/asthma/impact\\_nation/national\\_factsheet.pdf](http://www.cdc.gov/asthma/impact_nation/national_factsheet.pdf). Accessed September 18, 2012.

# National Statistics

**Lifetime Asthma Diagnosis Average Percents\* by Age, Gender, and Race, United States, 2008-2010**



\* Actual prevalence percents used.

Source: Centers for Disease Control and Prevention. Health Data Interactive. Prevalence and Data Trends. Asthma and chronic obstructive pulmonary disease. NHIS, 2008-2010.

Prepared by County of San Diego (CoSD). Health and Human Services Agency (HHSA), Community Health Statistics, 10/1/2012.

# National Disparities

- The asthma death rate among blacks is 190% higher than the asthma death rate among whites. (EPA)
- Nationally, Puerto Ricans had an asthma prevalence rate 113% higher than non-Hispanic whites. (EPA)
- In 2009, women had higher asthma prevalence than men, but among children aged 0-17, boys had a higher prevalence than girls. (Akinbami)
- In the United States, women have a higher asthma mortality rate than men. (Akinbami)

Source: - Akinbami LJ, Moorman JE, Liu X. Asthma prevalence, health care use, and mortality: United States, 2005-2009. National Health Statistics Reports, no 32. Hyattsville, MD: National Center for Health Statistics. 2011. - Environmental Protection Agency. Office of Air and Radiation. Asthma Fact Sheet. [http://www.epa.gov/asthma/pdfs/asthma\\_fact\\_sheet\\_en.pdf](http://www.epa.gov/asthma/pdfs/asthma_fact_sheet_en.pdf). Last updated April 2012. Accessed September 18, 2012.

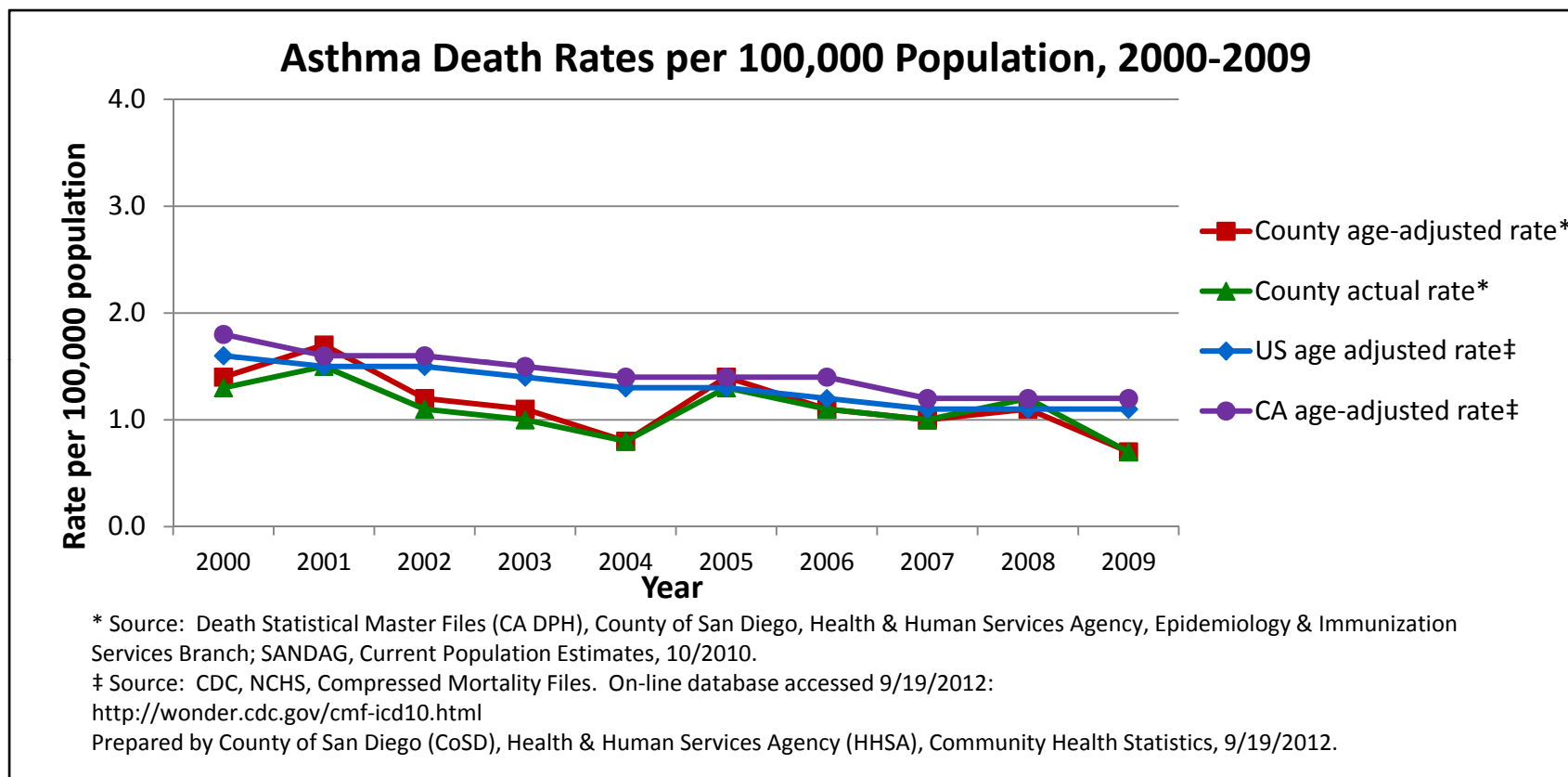
# Costs

- Asthma costs the United States \$56 billion each year.
- The average yearly cost of care for a child with asthma was \$1,039 in 2009.
- In 2008, nearly 10.5 million school days were missed due to asthma among children in the U.S.



Source: Centers for Disease Control and Prevention. Asthma. Asthma's Impact on the Nation Factsheet.  
[http://www.cdc.gov/asthma/impacts\\_nation/AsthmaFactSheet.pdf](http://www.cdc.gov/asthma/impacts_nation/AsthmaFactSheet.pdf). Accessed September 18, 2012.

# National, State, and Local Statistics

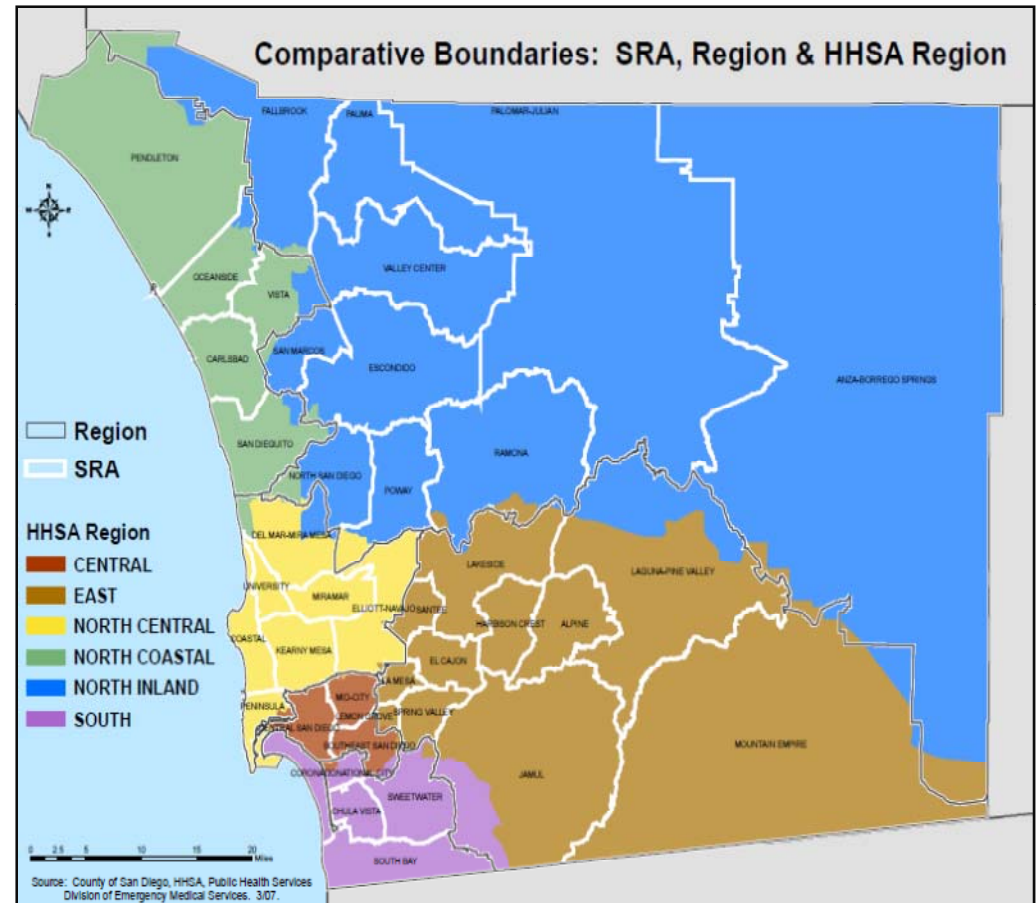


- The age-adjusted death rate from asthma in the US was approximately 1.3 per 100,000 for the years 2000-2009.
- The County age-adjusted asthma death rate has been comparable to the age-adjusted rates for the U.S. and California since 2000.



# Local Statistics

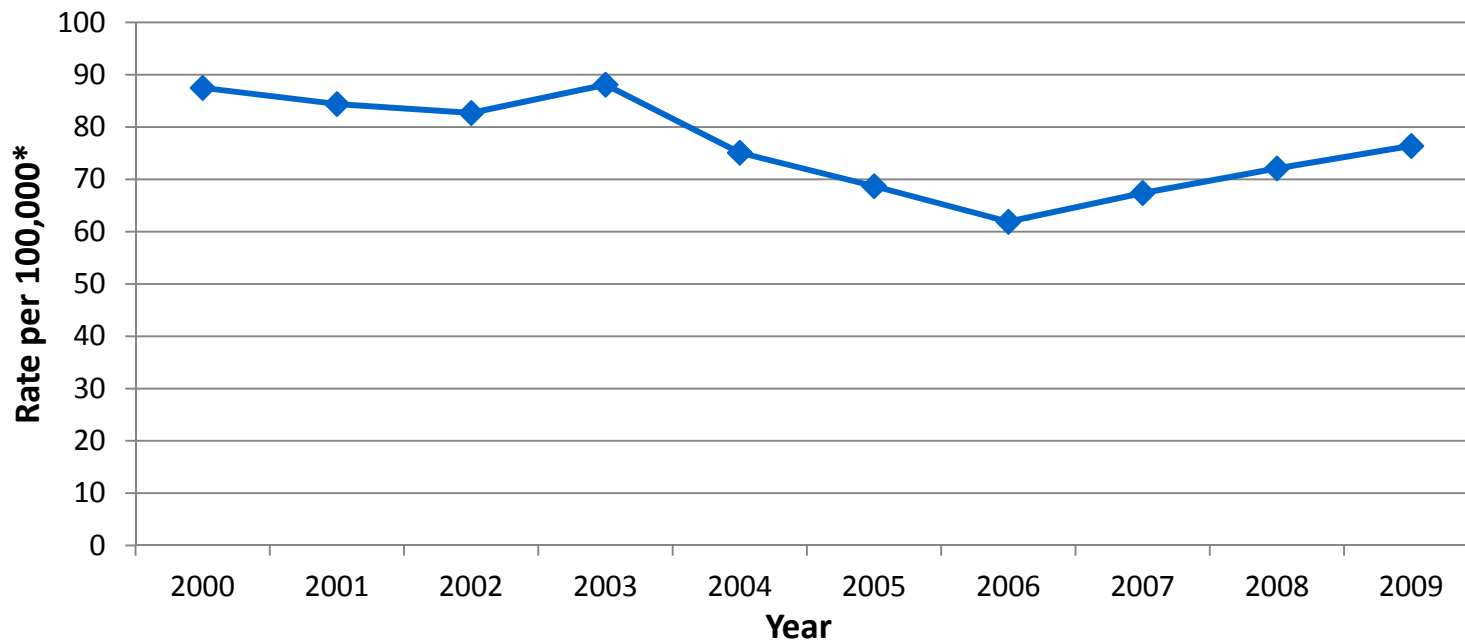
- In 2009, 12.3% of San Diego County residents reported ever being diagnosed with asthma. (CHIS)
- On average, 33 residents die from asthma every year in San Diego County.
- Central Region had the highest rate of asthma hospitalization in 2009.



Sources: -UCLA Center for Health Policy Research, California Health Interview Survey, <http://www.chis.ucla.edu/> (accessed 5/2009). - Death Statistical Master Files (CA DPH), County of San Diego, Health & Human Services Agency, Community Epidemiology; SANDAG, Current Population Estimates, 9/27/2006. Prepared by CoSD HHSA, PHS, Community Health Statistics, 9/2008.

# Local Statistics

**Asthma Hospitalization: Actual Rates\***  
**San Diego County, 2000-2009**



\* County actual rates are per 100,000 population.

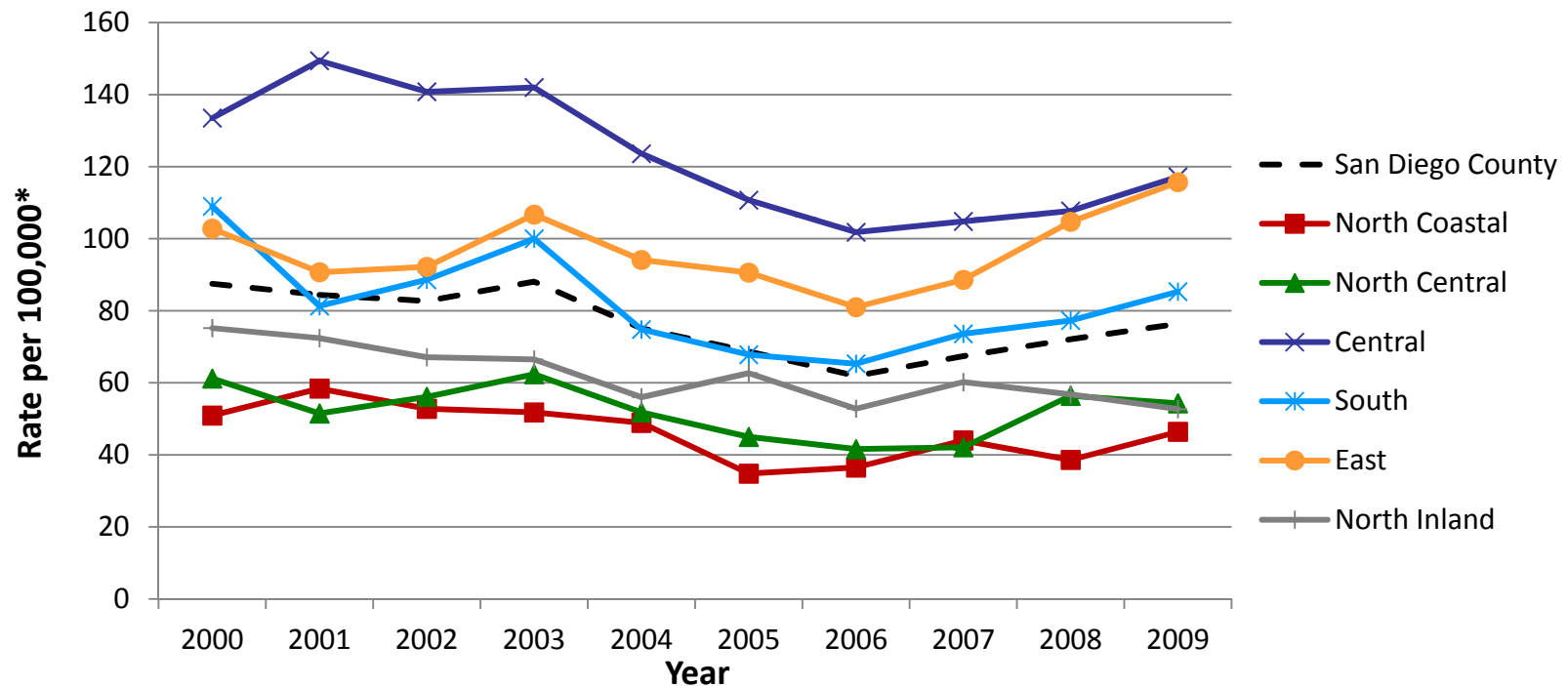
† Asthma hospitalization refers to (principal diagnosis) ICD-9 code 493.

Source: Patient Discharge Data, (CA OSHPD), County of San Diego, Health & Human Services Agency, Epidemiology & Immunization Services Branch; SANDAG, Current Population Estimates, 10/2010.

Prepared by County of San Diego (CoSD), Health & Human Services Agency (HHSA), Community Health Statistics, 9/19/2012.

# Local Statistics

**Asthma Hospitalization: Actual Rates\***  
**San Diego County Regions, 2000-2009**



\* County actual rates are per 100,000 population.

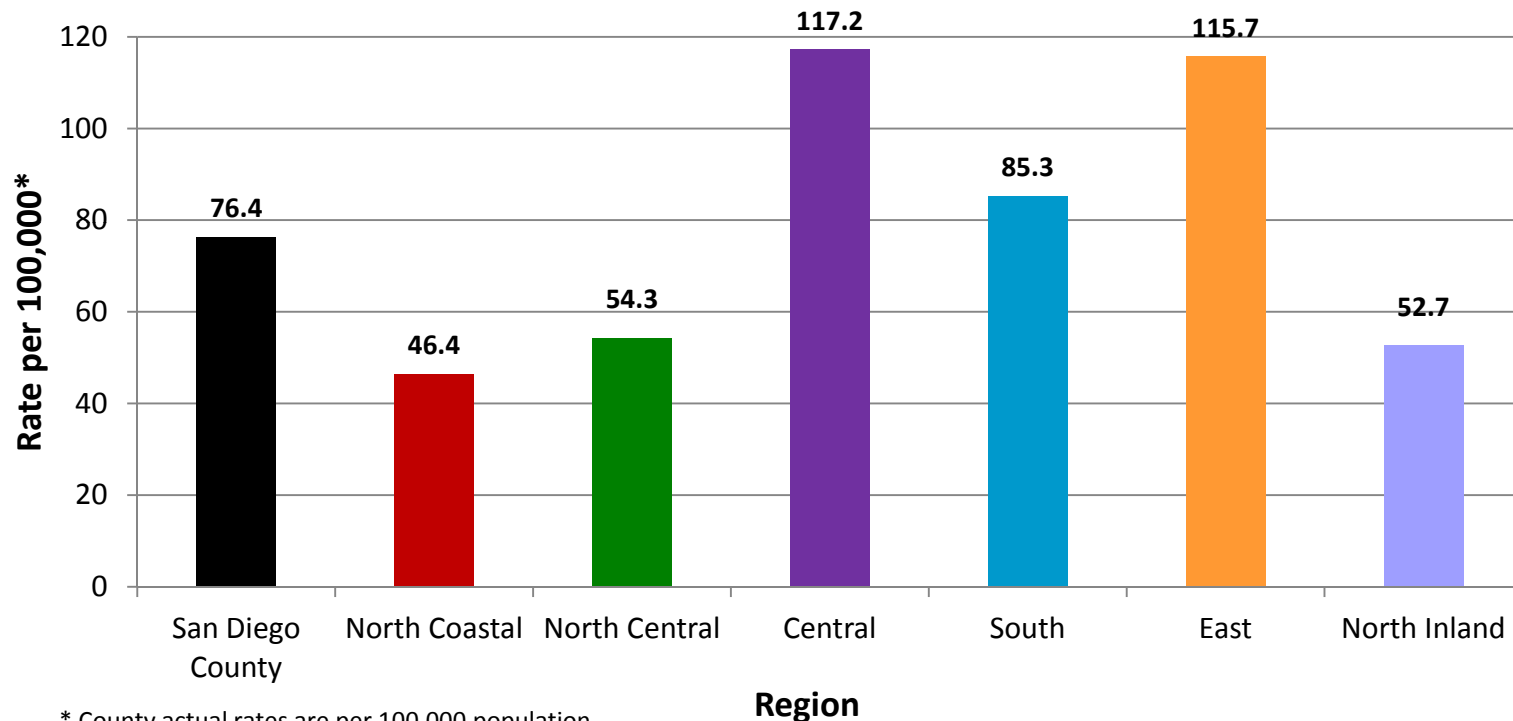
† Asthma hospitalization refers to (principal diagnosis) ICD-9 code 493.

Source: Patient Discharge Data, (CA OSHPD), County of San Diego, Health & Human Services Agency, Epidemiology & Immunization Services Branch; SANDAG, Current Population Estimates, 10/2010.

Prepared by County of San Diego (CoSD), Health & Human Services Agency (HHSA), Community Health Statistics, 9/19/2012.

# Local Asthma Rates

**Asthma Hospitalization: Actual Rates\* per 100,000 Residents in San Diego County, 2009**



\* County actual rates are per 100,000 population.

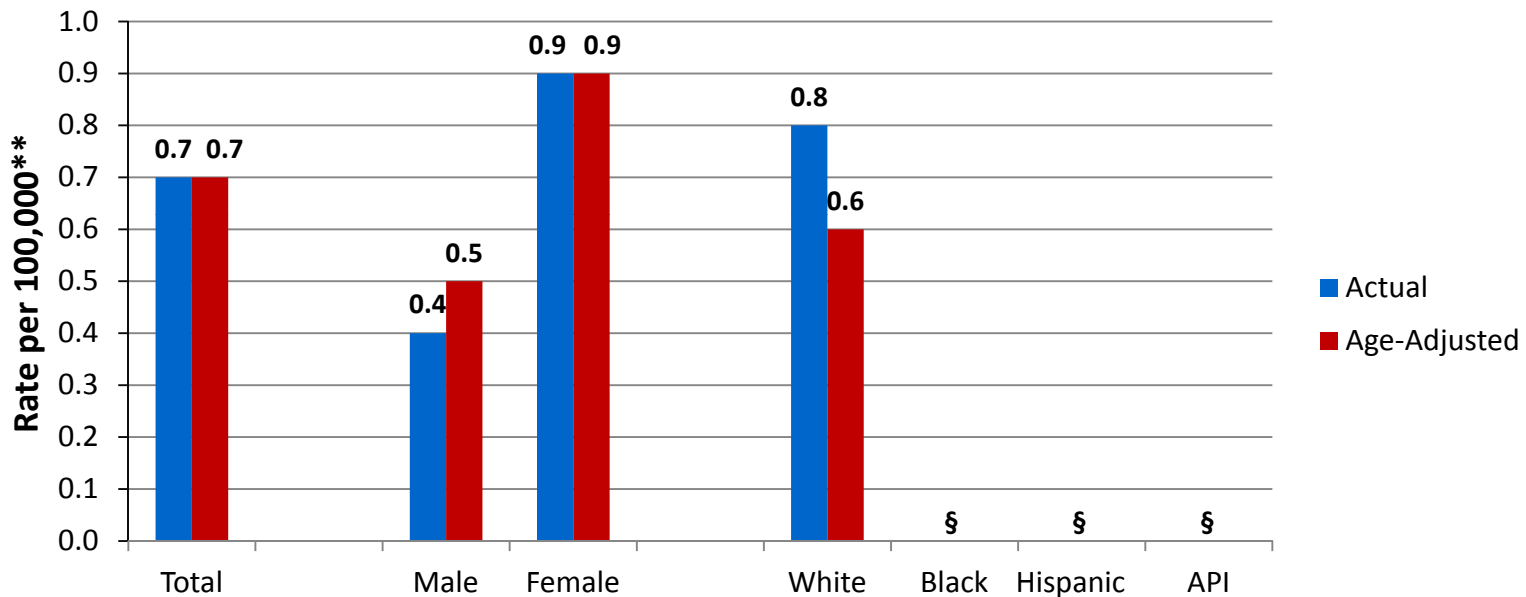
‡ Asthma hospitalization refers to (principal diagnosis) ICD-9 code 493.

Source: Patient Discharge Data, (CA OSHPD), County of San Diego, Health & Human Services Agency, Epidemiology & Immunization Services Branch; SANDAG, Current Population Estimates, 10/2010.

Prepared by County of San Diego (CoSD), Health & Human Services Agency (HHSA), Community Health Statistics, 9/19/2012.

# Local Disparities

**Asthma Deaths\*: Actual and Age-Adjusted Rates\*\*  
San Diego County, 2009**



\* Asthma Death refers to (underlying cause of death) ICD-10 codes J45-46

\*\* County actual rates are per 100,000 population. County age-adjusted rates per 100,000 2000 US standard population.

§ Rates not calculated for fewer than 5 events.

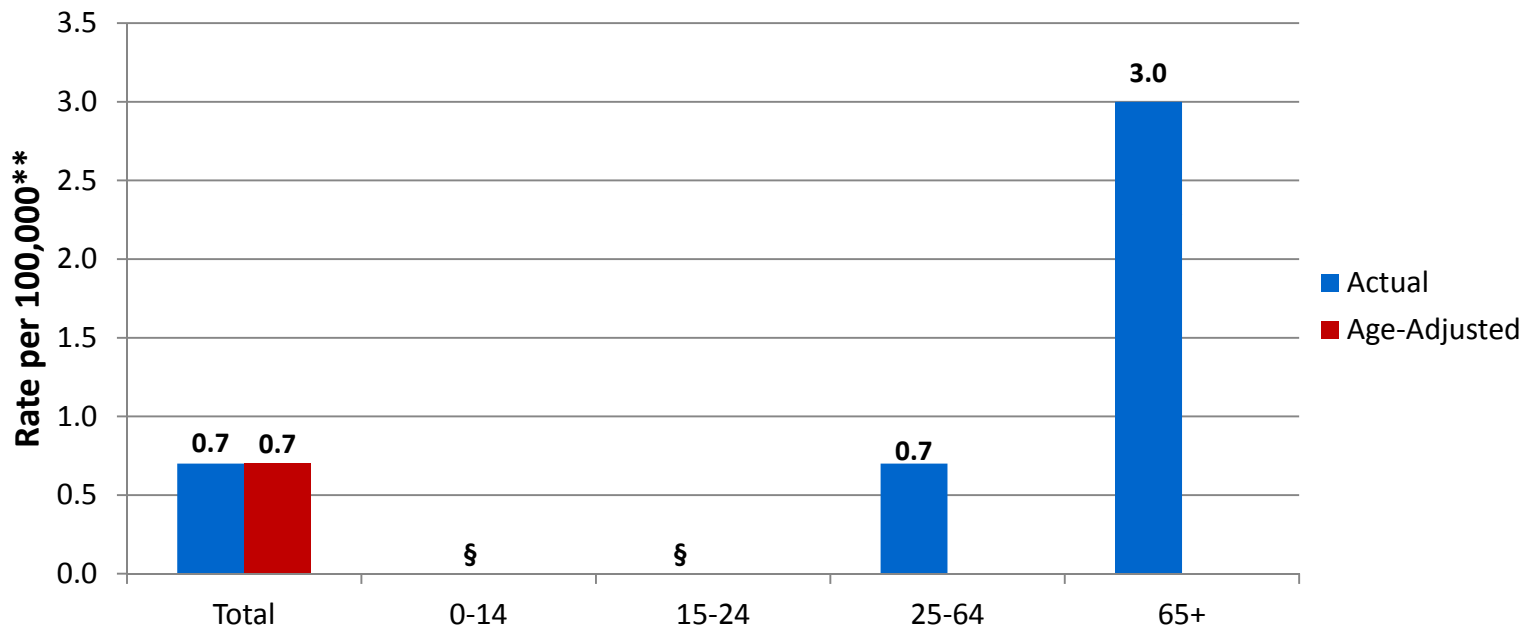
‡ API includes Asian and Pacific Islanders.

Source: Death Statistical Master Files (CADPH), County of San Diego, Health & Human Services Agency, Epidemiology & Immunization Services Branch; SANDAG, Current Population Estimates, 10/2010.

Prepared by County of San Diego (CoSD), Health & Human Services Agency (HHSA), Community Health Statistics, 9/19/2012.

# Local Disparities

**Asthma Death\* Rates\*\* by Age Group  
San Diego County, 2009**



\* Asthma death refers to (underlying cause of death) ICD-10 codes J45-J46.

\*\* County actual rates per 100,000 population. County age-adjusted rates per 100,000 2000 US standard population.

§ Rates not calculated for fewer than 5 events.

Source: Death Statistical Master Files (CA DPH), County of San Diego, Health & Human Services Agency, Epidemiology & Immunization Services Branch; SANDAG, Current Population Estimates, 10/2010.

Prepared by County of San Diego (CoSD), Health & Human Services Agency (HHSA), Community Health Statistics, 9/20/2012.



# Warning Signs of Asthma for Children

- Coughing at night
- Has the cold or the flu
- Has a fever
- Stuffy or runny nose
- Tickle in the throat
- Sneezing and watery eyes
- Tightness in the chest
- Feels weak or tired
- Has headaches
- Restless
- Pale face
- Dark circles under the eyes



Source: Environmental Protection Agency. Centers for Disease Control and Prevention. Help Your Child Gain Control Over Asthma.  
[http://www.epa.gov/asthma/pdfs/ll\\_asthma\\_brochure.pdf](http://www.epa.gov/asthma/pdfs/ll_asthma_brochure.pdf). Accessed September 20 2012.

# Warning Signs of an Asthma Attack

- Difficulty breathing
- Shortness of breath
- Severe wheezing when breathing
- Coughing with asthma that won't stop
- Very rapid breathing
- Chest pain or pressure
- Tightened neck and chest muscles
- Difficulty talking or performing normal daily tasks
- Feelings of anxiety or panic
- Pale, sweaty face
- Blue lips or fingernails
- Worsening symptoms despite use of medications



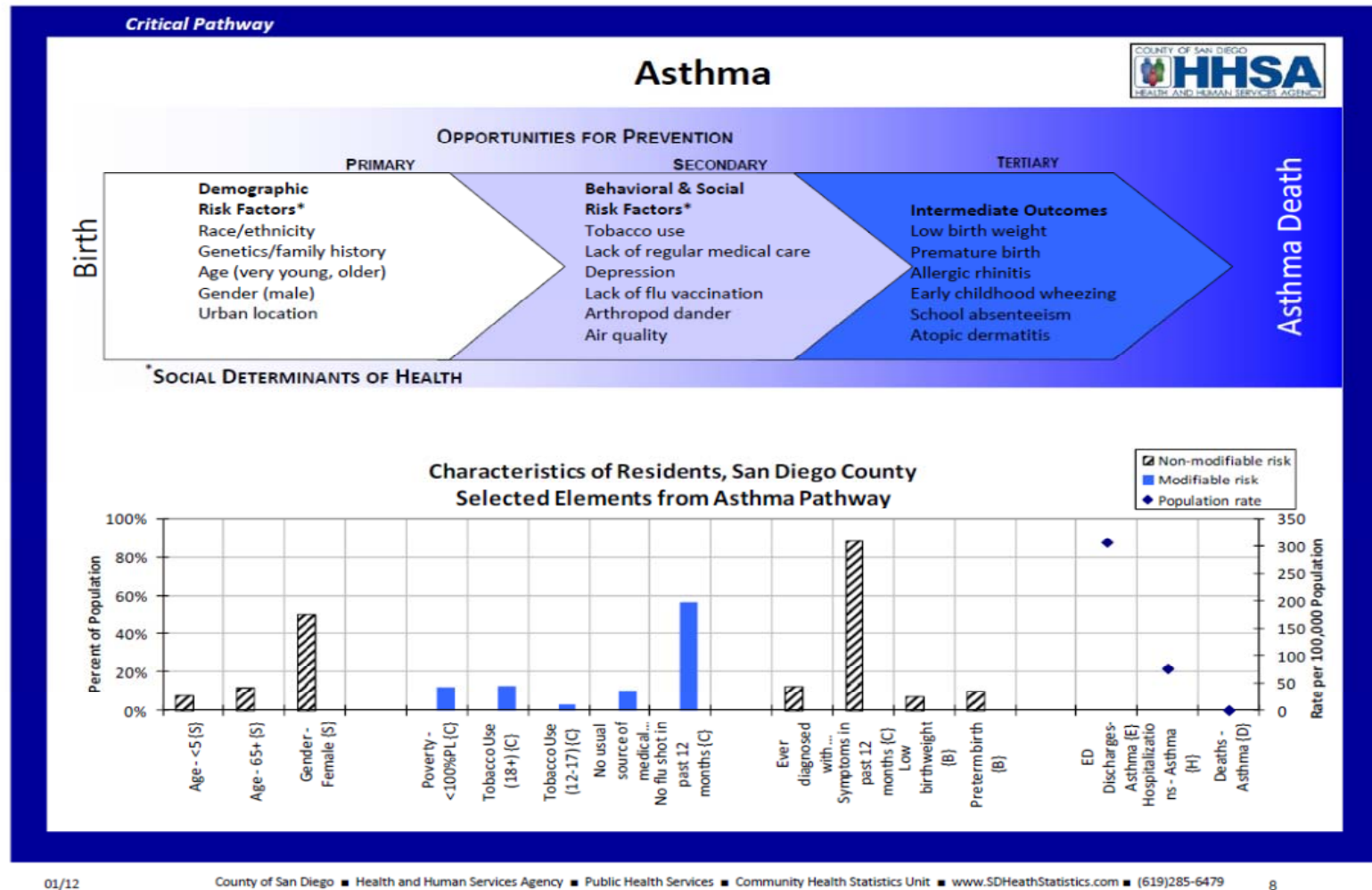
Source: Centers for Disease Control and Prevention. You Can Control Your Asthma. Environmental Hazards and Health Effects Program. Accessed November 19, 2012.

# Prevention of Asthma Attacks

Asthma Trigger	How to Prevent An Attack
Tobacco smoke	<ul style="list-style-type: none"> <li>• Quit smoking</li> <li>• Avoid secondhand smoke exposure</li> </ul>
Dust mites	<ul style="list-style-type: none"> <li>• Wash bedding in hot water once a week</li> <li>• Use dust proof covers on pillows and mattresses</li> <li>• Vacuum carpets and furniture weekly</li> </ul>
Pets	<ul style="list-style-type: none"> <li>• Keep pets outside and off furniture</li> </ul>
Cockroaches	<ul style="list-style-type: none"> <li>• Store food in airtight containers</li> <li>• Seal cracks or openings around and inside cabinets</li> </ul>
Mold	<ul style="list-style-type: none"> <li>• Dry damp or wet things completely</li> <li>• Use exhaust fans or open a window in the bathroom and kitchen</li> </ul>
Outdoor air pollution	<ul style="list-style-type: none"> <li>• Monitor the AQI (Air Quality Index)</li> </ul>

Source: Environmental Protection Agency. Centers for Disease Control and Prevention. Help Your Child Gain Control Over Asthma. [http://www.epa.gov/asthma/pdfs/il\\_asthma\\_brochure.pdf](http://www.epa.gov/asthma/pdfs/il_asthma_brochure.pdf). Accessed September 20 2012.

# Critical Pathway for Asthma



Source: County of San Diego Health and Human Services Agency, Public Health Services. Community Health Statistics Unit. (2011). Critical Pathways: the Disease Continuum, Asthma. April, 2011. [http://www.sdcountry.ca.gov/hhsa/programs/phs/documents/CHS-Critical\\_Pathways\\_2012.pdf](http://www.sdcountry.ca.gov/hhsa/programs/phs/documents/CHS-Critical_Pathways_2012.pdf). Critical Pathways. Accessed November 19, 2012.

# Contact Us

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